FEMA

Guam Memorial Hospital Mitigation
Hospital Mitigates Against Typhoons

State-wide,
Guam

Guam - The U.S. Territory of Guam is the largest and southern-most island in the Mariana Islands archipelago. Many typhoons form in the western Pacific Ocean and in the past 50 years, more than 25 typhoons have struck the island.

On Dec. 16-17, 1997, Typhoon Paka, noted as one of the most powerful storms of the 20th Century, directly struck the island with sustained winds of 150 miles per hour and gusts to 185 mph. Paka's winds impacted the island for a 12 hours, creating a much-longer-than-usual timeframe for wind, rain, and storm surges to cause damage. The northern and central sections of the island sustained widespread damage to homes, the island's power grid and public utilities, privately owned buildings, and many other structures.

Guam Memorial Hospital (GMH) is the only civilian inpatient facility on the island and the only healthcare facility that remains open during and immediately after typhoons. The hospital becomes the only dialysis unit, lab and source of oxygen. It also provides temporary lodging for expectant mothers.

Typhoon Paka impacted GMH's main building and its service delivery. The exterior oxygen storage facility sustained structural damage. Upper levels of the hospital are accessible by an open stairwell and exterior corridors. Heavy rains and high winds created an extremely dangerous situation making the ability to care for the patients on the upper levels difficult.

Following Typhoon Paka, GMH was awarded HMGP funds to harden the oxygen storage facility and enclose the exterior corridors and stairwells. By replacing the facility's tin roof with concrete and by building concrete walls around the structure, the hospital eliminated the possibility of storm and debris exposure to the facility. The funds were also provided to enclose the exterior corridors on the ground floor and the exterior stairwell in order to provide a safe, protected means of access. The one-time cost of replacing the roof of the oxygen storage facility, replacing the liquid oxygen tank and using portable cylinders until the new tank was put in place was $988,560. The cost of hardening the oxygen storage facility was $51,550. The benefit/cost ratio for this project is 20 to 1.

The expectation is that there will be little or no damage from the next typhoon and thus no further repair or replacement costs. Risk analysis shows the benefit of this work is valued at $4,768,188, a benefit to cost ratio of 2 to 6.

Quick Facts

Sector:
Public

Cost:
$1,919,612.00 (Estimated)

Primary Activity/Project:
Retrofitting, Structural

Primary Funding:
Hazard Mitigation Grant Program (HMGP)